

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1 1. (Currently amended) A microrelay, comprising:
2 a first signal line;
3 a second signal line;
4 a contact head configured to make an electrical connection between the
5 first signal line and the second signal line; and
6 an electro-thermal actuator coupled to the contact head and configured to
7 laterally displace the contact head so that the closing action of the contact head is
8 parallel to the plane of a semiconductor wafer upon which the microrelay is
9 fabricated;
10 wherein the contact head and associated portions of the first and second
11 signal lines are covered with a layer of sputtered gold, and wherein a partial
12 release operation was performed at the closing gap to ensure the separation of
13 sputtered gold on the contact head sidewall and the signal lines.

1 2. (Original) The microrelay of claim 1,
2 wherein the electro-thermal actuator comprises a substantially V-shaped
3 beam;
4 wherein thermal expansion caused by current flowing through the
5 substantially V-shaped beam actuates the contact head to make the electrical
6 connection.

1 3. (Original) The microrelay of claim 1, wherein the electro-thermal
2 actuator comprises a substantially V-shaped central beam cascaded between two
3 substantially V-shaped side beams, which increase the displacement of the
4 substantially V-shaped central beam during actuation.

1 4. (Original) The microrelay of claim 1, wherein the electro-thermal
2 actuator is comprised of:
3 silicon;
4 polysilicon;
5 nickel; or
6 tungsten.

1 5 (Canceled).

1 6. (Original) The microrelay of claim 1, wherein the contact head is
2 coupled to the electro-thermal actuator through an insulator.

1 7. (Original) The microrelay of claim 6, wherein the insulator is comprised
2 of:
3 silicon nitride; or
4 silicon dioxide.

1 8 (Canceled).

1 9. (Currently amended) The microrelay of claim 1, wherein the shape of
2 the contact head is:

3 square;
4 angled; or

5 rounded.

1 10. (Original) The microrelay of claim 1, wherein the microrelay is
2 fabricated using a process that involves:

3 deposition of low-stress silicon nitride as isolation;
4 deposition and patterning of sacrificial silicon dioxide;
5 deposition and patterning of a low-stress silicon nitride connection;
6 deposition and patterning of polysilicon;
7 a partial release operation;
8 sputtering and lift-off of gold; and
9 a full release operation.

1 11. (Original) The microrelay of claim 1, wherein the microrelay is an
2 element in an array of microrelays.

1 12. (Currently amended) A microrelay, comprising:

2 a first signal line;
3 a second signal line;
4 a contact head configured to make an electrical connection between the
5 first signal line and the second signal line; and
6 an electro-thermal actuator coupled to the contact head and configured to
7 laterally displace the contact head so that the closing action of the contact head is
8 parallel to the plane of a semiconductor wafer upon which the microrelay is
9 fabricated;

10 wherein the electro-thermal actuator comprises a substantially V-shaped
11 beam, wherein thermal expansion caused by current flowing through the
12 substantially V-shaped beam actuates the contact head to make the electrical
13 connection;

14 wherein the contact head and associated portions of the first and second
15 signal lines are covered with a layer of sputtered gold, and wherein a partial
16 release operation was performed at the closing gap to ensure the separation of
17 sputtered gold on the contact head sidewall and the signal lines.

1 13 (Canceled).

1 14. (Original) The microrelay of claim 12, wherein the contact head is
2 coupled to the electro-thermal actuator through an insulator.

1 15 (Canceled).

1 16. (Currently amended) The microrelay of claim 12, wherein the shape of
2 the contact head is:

3 square;
4 ~~angled~~; or
5 rounded.

1 17-20 (Canceled).